TECHNICAL NOTE
Horton Solar Site – Management and Monitoring of the Site

Application Reference:
DC/24/0374 Horton Landfill, Henfield - solar panel development

INTRODUCTION

A technical note which sets out the management and monitoring of the site going forward has been requested by Horsham District Council as the application, if granted, would in part supersede the existing permissions on site.

SITE HISTORY

The extant consents for the site are:

WSCC/088/10/UB: Variation of Condition 1 of DC/814/07(UB) to allow waste disposal to continue at Horton from 1 Oct 2010 to 1 August 2011.

WSCC/042/19: Amendment to Condition 3 of Planning Permission WSCC/056/14/HB to extend the time allowed for infill of the SSSI to August 2020.

WSCC/042/13/UB: Variation of Condition 2 of planning permission WSCC/094/10/UB to allow for changes in design to the approved site layout.

CURRENT AFTERCARE MONITORING RESPONSBILITIES

Attached to this note is a Permission and Compliance plan (ECL9910.D01.012.A) showing the three extant permissions on the site. Aftercare monitoring responsibilities associated with the three extant planning permissions listed above are the responsibility of West Sussex County Council. If application DC/24/0374 is granted planning consent, the responsibility for monitoring would fall on Horsham District Council. It is the responsibility of Valencia Waste Management Ltd to submit any aftercare reports required under the extant or any future consent on site and to deliver the restoration and aftercare proposals on the site.

FUTURE RESPONSIBILITIES

The area within the redline boundary for application DC/24/0374 – Solar Panel Development would fall under the responsibility of Horsham District Council. All planning compliance matters in the area within the solar scheme red line would transfer to HDC moving forward (i.e. it would largely supersede any extant planning requirements for that part of the site). Any ongoing planning/aftercare requirements that relate to the remaining wider landfill site (i.e. outside of the solar scheme red line), will be for WSCC. Extant aftercare provisions will continue to remain in place for the periods specified in the approved schemes and continue to be monitored as per the requirements of the three extant consents (WSCC/088/10/UB, WSCC/042/19 and WSCC/042/13/UB) in accordance with the aftercare reports.

A site wide topographical survey will be provided to both WSCC and HDC for all areas (subject of both WSCC and HDC permissions) every 5 years so that the authorities can continue to observe settlement is occurring in general accordance with that predicted (post settlement contours identified at the application stage), and in accordance with Condition 18 of WSCC/088/10/UB,.

The inception swales are situated outside of the red line site boundary as per drawing ECL.9910.D01.001 A. The swales are however within the land ownership boundary. The swales proposed are 500mm deep. There is 1m of sub soil and topsoil above the cap. The swales will be within this cap so will not penetrate the landfill liner. As set out within the approved LRAMP for the site when the surface of the land needs to be disturbed materials similar to original restoration will be used (Section 3.7 of LRAMP). Any work to the swales would need to be undertaken under the supervision of an ecologist. The monitoring of these swales would fall under the responsibility of both WSCC and HDC. The Applicant will seek agreement to changes to extant approved aftercare scheme (LRAMP) with WSCC in writing following approval of solar application. For the avoidance of doubt WSCC would only monitor the swales insofar as they form part of the restoration planting/seeding strategy. Any enforcement of their function as a drainage feature for the solar area, would remain within the remit of HDC (and should be subject conditions imposed upon the solar proposal).

Requirements of the Environmental Permit

The Site is regulated under an Environmental Permit (reference EPR/BV9900IS). The Environment Agency granted a variation on the 30th May 2017 to allow the Site to enter into the aftercare period, requiring long-term environmental monitoring and management. The site operates in accordance with an approved Closure Plan approved by the Environment Agency in accordance with the Landfill Directive and the Environmental Permitting Regulations (England and Wales) 2016. During this period management systems remain in place to ensure that the site does not pose a risk to the environment or human health.

During this period, continuation of environmental monitoring is a requirement of the permit, including:

- Leachate levels with compliance points across cells 1 through 7 as a frequency specified in the permit.
- Landfill gas monitoring is required around various points around the site to be monitored at a frequency specified in the permit.
- Gas engines and flares – Engines and flares are installed and utilised on site to manage (recover) landfill gas. Emissions to air from the Gas Utilisation Plant are required to be monitored and specific limits for parameters set are specified in the permit.
- The permit allows for leachate treatment prior to discharge into the River Adur. Parameters and limits of the discharge are specified in the permit.

- Groundwater monitoring at specific groundwater monitoring locations for specific parameters and frequency specified in the permit.

The operator is required to continue to operate and maintain infrastructure including the gas and leachate systems including collection, treatment and in the case of landfill gas, the Gas Utilisation Plant where landfill gas is recovered.

Monitoring reporting is required to be submitted to the Environment Agency at periods specified in the Environmental Permit. All monitoring is carried out in accordance with the Environmental Permit and any other documentation approved by the Environment Agency.

The site will remain regulated by the Environment Agency until such a time that the Environment Agency have assessed and determined a permit surrender application submitted by the landfill operator, and this has been granted. The site would need to meet the Agency's surrender criteria. In order to achieve this, typically 3 or more years of stable environmental monitoring data would be required to demonstrate and evidence that the site has reached a point of long term stability. Additionally, evidence that environmental control systems are no longer needed and can be safely decommissioned and the permit conditions, including aftercare requirements, have been met.

EXTANT PLANNING CONDITIONS

The following conditions still apply from the existing extant permissions and therefore require compliance:

WSCC/088/10/UB: Variation of Condition 1 of DC/814/07(UB) to allow waste disposal to continue at Horton from 1 Oct 2010 to 1 August 2011.

- Condition 20 – *Notwithstanding the landscape management plan / scheme required under Condition 8, an amended aftercare scheme showing the steps to be taken to return the site to a standard suitable for agriculture use shall be submitted for approval of the County Planning Authority by not later than three months from the date of this permission. The submitted scheme shall specify the steps to be taken on an annual basis over a period of sixty years from the completion of the restoration of each phase of the site in accordance with Condition 16. The aftercare of the site shall be carried out in accordance with the aftercare scheme as approved by County Planning Authority or any variation thereto that might subsequently be agreed in writing by the County Planning Authority*

Matters within the LRAMP (ref 407-0036-00368 May 2011 rev 1) that should be taken forward to be monitored by HDC as within the redline of the solar scheme.

- Measures for addressing any minor depression. When areas have sunk more than 300mm lower than the surrounding ground they are likely to produce areas of standing water. These areas will be subject to remedial action which will consist of the removal of 300mm of soil and rising of the subsoil layer to the desired level and then the top 300mm replaced and reseeded as necessary. (Section 3.7 of LRAMP).
- Due to the presence of subsurface infrastructure for landfill gas and other environmental monitoring and control systems, occasionally the surface of the land will need to be disturbed to carry out repairs to these installations. Such disturbances will be kept to a minimum and materials similar to original restoration will be used (Section 3.7 of LRAMP).
- Fencing shall be maintained through the aftercare period (Section 3.8 of LRAMP)

- The existing woodland management will focus on restructuring through selective thinning and coppicing over a long rotation (every 7-10 years) (Section 4.3 of LRAMP Ecological Enhancement).
- A restoration survey will be undertaken annually, report to HDC every 5 years (years 5-60) (Section 5.1 of LRAMP).
- Periodic removal of Ragwort will be undertaken as deemed necessary .
- Continued management of established habitats:
    - Monitoring of the substrate for signs of erosion or surface water ponding, and the undertaking of any necessary remedial measures;
    - Re-grading of 'blow-outs' of restoration substrate;
    - Monitoring/remediation of any excessive soil wash/deposition of fine material around the base of the landfill and in ponds and lagoons;
    - Re-seeding of any areas of failed germination or disturbance
    - Replanting and beating up of areas of failed woodland establishment;
    - Checking and repairing of restoration infrastructure;
    - Checking and repairing of any geosynthetics; and
    - Control of invasive and noxious weed species

WSCC/042/19: Amendment to Condition 3 of Planning Permission WSCC/056/14/HB to extend the time allowed for infill of the SSSI to August 2020.

- Condition 4: *The approved Restoration Plan (ref. 68185.ES.008 rev A) and Annex 1 ('Amended Submission of Details Pursuant to Planning Condition 7 Attached to Planning Permission WSCC/056/14/UB at Horton Landfill Site, West Sussex') shall be completed in full by no later than 28 August 2023, with the ongoing aftercare programme set out in Annex 1 adhered to for the following ten years to 28 August 2033.*

The approved drawing is Restoration plan 68185.ES.008 rev A. The approved aftercare programme remains in force until 28 August 2033 which is included as appendix 1 to this letter. This is only for the area outside of the Solar redline boundary

WSCC/042/13/UB: Variation of Condition 2 of planning permission WSCC/094/10/UB to allow for changes in design to the approved site layout.

- Condition 5: *All plant, structures and buildings within the leachate treatment plant shall be removed from the site following the permanent cessation of leachate production. Production cessation shall be confirmed in writing but the Waste Licensing Authority (Environment Agency). Not later than 3 months following the removal of the leachate treatment plant a scheme of restoration including measures for the aftercare of the site and its reinstatement shall be submitted to and approved in advance and in writing by the County Planning Authority. Thereafter, the scheme shall be implemented in full as approved.*

Condition 5 will continue to remain in force in full, and all necessary details and a restoration scheme for that area will be submitted to WSCC in due course.

END

Appendix 1: (WSCC/042/19) Restoration plan 68185.ES.008 rev A and approved aftercare programme

INVERTEBRATES AND REPTILE RESTORATION HABITAT

INCLUDES AREAS SPREAD WITH AGGREGATE / SAND TO LIMIT VEGETATION COLONISATION AND PROVIDE HOLLOWS AND OPEN AREAS FOR SHELTERING AND BASKING.

NATIVE SCRUB PLANTING

SMALL IRREGULAR POCKETS TO ALLOW SLOW REGENERATION TO PREVENT RAPID SUCCESSION OF OPEN HABITATS

BUTTERFLY BANK

BUND OF INERT AGGREGATE / LOW NUTRIENT SUB-TOPSOIL, 0.5-1.0m HIGH, CAPPED WITH LOOSE AGGREGATE OR RUBBLE (50-100mm)

SUCCESSIONAL HABITAT

AREA OF BARE GROUND TRACKED LEVEL AFTER SOIL PLACEMENT, NO SEEDING. ALLOWED TO COLONISE NATURALLY.

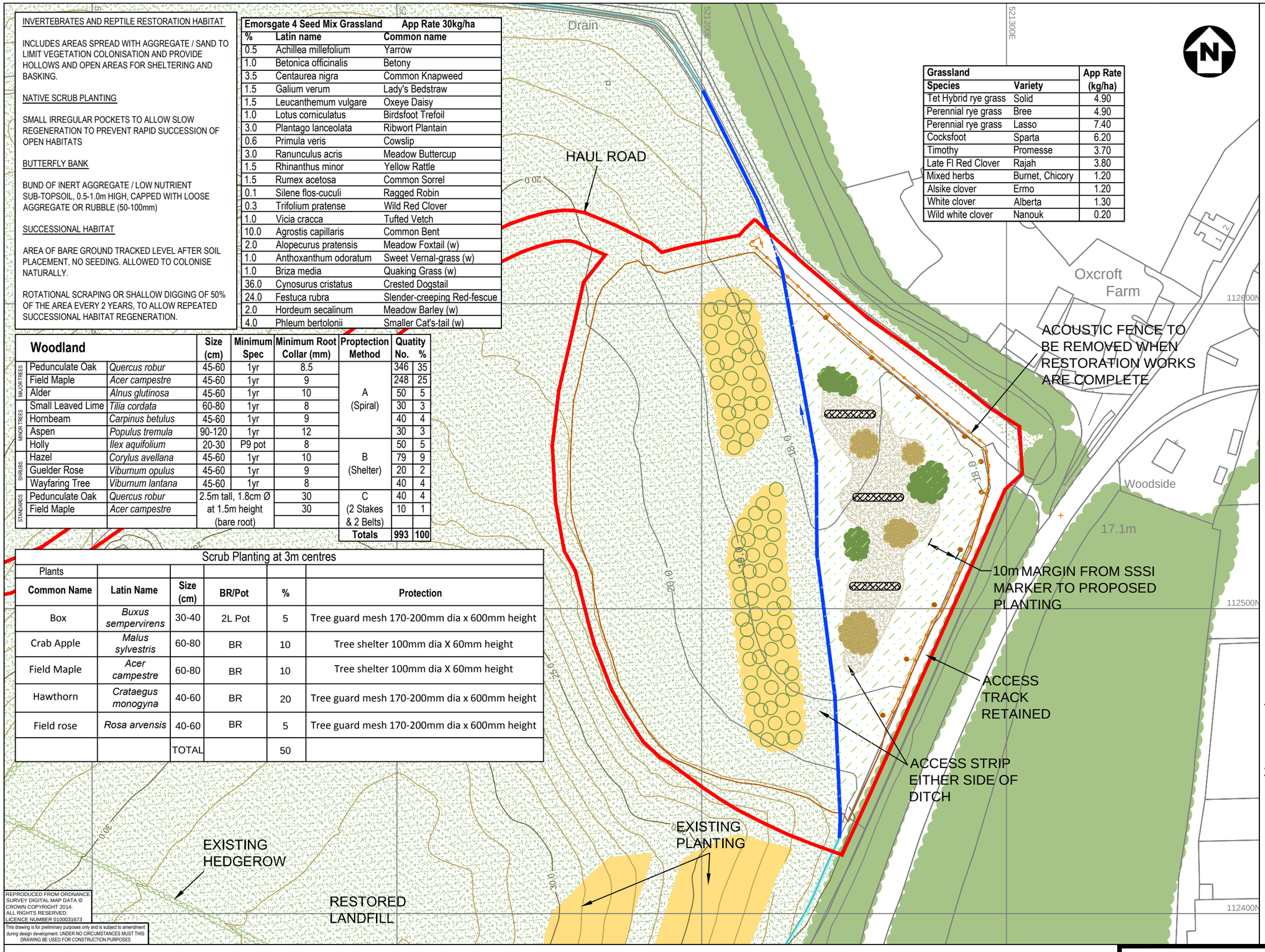
ROTATIONAL SCRAPING OR SHALLOW DIGGING OF 50% OF THE AREA EVERY 2 YEARS, TO ALLOW REPEATED SUCCESSIONAL HABITAT REGENERATION.

Emorsgate 4 Seed Mix Grassland		App Rate 30kg/ha
%	Latin name	Common name
0.5	Achillea millefolium	Yarrow
1.0	Betonica officinalis	Betony
3.5	Centaurea nigra	Common Knapweed
1.5	Galium verum	Lady's Bedstraw
1.5	Leucanthemum vulgare	Oxeye Daisy
1.0	Lotus corniculatus	Birdsfoot Trefoil
3.0	Plantago lanceolata	Ribwort Plantain
0.6	Primula veris	Cowslip
3.0	Ranunculus acris	Meadow Buttercup
1.5	Rhinanthus minor	Yellow Rattle
1.5	Rumex acetosa	Common Sorrel
0.1	Silene flos-cuculi	Ragged Robin
0.3	Trifolium pratense	Wild Red Clover
1.0	Vicia cracca	Tufted Vetch
10.0	Agrostis capillaris	Common Bent
2.0	Alopecurus pratensis	Meadow Foxtail (w)
1.0	Anthoxanthum odoratum	Sweet Vernal-grass (w)
1.0	Briza media	Quaking Grass (w)
36.0	Cynosurus cristatus	Crested Dogstail
24.0	Festuca rubra	Slender-creeping Red-fescue
2.0	Hordeum secalinum	Meadow Barley (w)
4.0	Phleum bertolonii	Smaller Cat's-tail (w)

Grassland		App Rate
Species	Variety	(kg/ha)
Tet Hybrid rye grass	Solid	4.90
Perennial rye grass	Bree	4.90
Perennial rye grass	Lasso	7.40
Cocksfoot	Sparta	6.20
Timothy	Promesse	3.70
Late FI Red Clover	Rajah	3.80
Mixed herbs	Burnet, Chicory	1.20
Alsike clover	Ermo	1.20
White clover	Alberta	1.30
Wild white clover	Nanouk	0.20

Woodland			Size (cm)	Minimum Spec	Minimum Root Collar (mm)	Proptection Method	Quatity No.	Quatity %
MAJOR TREES	Pedunculate Oak	*Quercus robur*	45-60	1yr	8.5	A (Spiral)	346	35
MAJOR TREES	Field Maple	*Acer campestre*	45-60	1yr	9	A (Spiral)	248	25
MAJOR TREES	Alder	*Alnus glutinosa*	45-60	1yr	10	A (Spiral)	50	5
MINOR TREES	Small Leaved Lime	*Tilia cordata*	60-80	1yr	8	A (Spiral)	30	3
MINOR TREES	Hornbeam	*Carpinus betulus*	45-60	1yr	9	A (Spiral)	40	4
MINOR TREES	Aspen	*Populus tremula*	90-120	1yr	12	A (Spiral)	30	3
SHRUBS	Holly	*Ilex aquifolium*	20-30	P9 pot	8	B (Shelter)	50	5
SHRUBS	Hazel	*Corylus avellana*	45-60	1yr	10	B (Shelter)	79	9
SHRUBS	Guelder Rose	*Viburnum opulus*	45-60	1yr	9	B (Shelter)	20	2
SHRUBS	Wayfaring Tree	*Viburnum lantana*	45-60	1yr	8	B (Shelter)	40	4
STANDARDS	Pedunculate Oak	*Quercus robur*	2.5m tall, 1.8cm Ø at 1.5m height (bare root)		30	C (2 Stakes & 2 Belts)	40	4
STANDARDS	Field Maple	*Acer campestre*			30	C (2 Stakes & 2 Belts)	10	1
						Totals	993	100

Scrub Planting at 3m centres					
Plants					
Common Name	Latin Name	Size (cm)	BR/Pot	%	Protection
Box	*Buxus sempervirens*	30-40	2L Pot	5	Tree guard mesh 170-200mm dia x 600mm height
Crab Apple	*Malus sylvestris*	60-80	BR	10	Tree shelter 100mm dia X 60mm height
Field Maple	*Acer campestre*	60-80	BR	10	Tree shelter 100mm dia X 60mm height
Hawthorn	*Crataegus monogyna*	40-60	BR	20	Tree guard mesh 170-200mm dia x 600mm height
Field rose	*Rosa arvensis*	40-60	BR	5	Tree guard mesh 170-200mm dia x 600mm height
		TOTAL		50	



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KEY

- PLANNING PERMISSION AREA

EXISTING FEATURES

- DITCH ALIGNMENT
- CONTOURS
- GRASSLAND
- WOODLAND PLANTING
- HEDGEROW
- TREES / WOODLAND

PROPOSED FEATURES

- DITCH ALIGNMENT
- SUCCESSIONAL HABITAT
- BUTTERFLY BANK
- AREAS SPREAD WITH AGGREGATE / SAND
- NATIVE SCRUB PLANTING
- SSSI MARKER
- GRASSLAND
- EMORSGATE 4 SEED MIX GRASSLAND
- PROPOSED WOODLAND PLANTING - 0.44 Ha

NOTES

1. DESIGN BASED ON TOPOGRAPHICAL SURVEY DATA AS SUPPLIED BY VIRIDOR, DATED MAY 2013.
2. ALL RESTORATION AREAS TO THE WEST OF THE PROPOSED DITCH, INCLUDING THE HAUL ROAD, TO BE PREPARED TO AT LEAST AGRICULTURAL GRADE 3 PRIOR TO THE SURFACE TREATMENTS BEING APPLIED AS DETAILED ON THIS DRAWING. THAT IS MIN 700mm SUBSOIL AND 300mm TOPSOIL, FREE OF DEBRIS.

Drawing Title

HORTON LANDFILL - INERT INFILL OF GEOLOGICAL SSSI RESTORATION

68185.ES.008

Scale at A3 : 1:1,250

Drw DM	App CN	Rev A
Chk CN	Date JUL 14	Date MAR 15

AECOM

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ANNEX 1

Amended Submission of Details Pursuant to Planning Condition 7 Attached to Planning Permission WSCC/056/14/UB at Horton Landfill Site, West Sussex

Condition 7 - Restoration & Aftercare Scheme

Prior to the commencement of development a restoration and aftercare scheme relating to the restoration of the site (including haul road) shall be submitted to and approved by the County Planning Authority. The scheme shall indicate:

a) details of the top layers of fill including depths;
b) details for the restoration of the area west of the proposed woodland planting belt (shown on Restoration (dwg 68185.SS.008) to at least agricultural grade 3;
c) details of seeding, planting and subsequent aftercare of the restored land including, as relevant, the species and spacing of any plants/trees; and
d) details of the site's maintenance and aftercare for at least ten years after the completed restoration.

Once approved, the scheme shall be implemented in full in the first planting season (November - February) following the commencement of the development. Any plants which die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of a similar size and species, unless otherwise agreed in writing with the County Planning Authority.

The scheme proposed in accordance with Condition 7 is as follows.

- All restoration areas to the west of the proposed ditch, including the haul road, are to be prepared to at least agricultural grade 3 prior to the surface treatments being applied as detailed on the attached plan ref. 68185.ES.008 Rev A; that is a minimum of 700mm subsoil and 300mm topsoil, free of debris. The soils shall be ripped or deeply cultivated after emplacement. Soils shall not be over compacted.

- The restoration areas to the east of the proposed ditch are to receive 300mm subsoil, free of debris, prior to the surface treatments being applied as detailed on drawing 68185.ES.008 Rev A.

- The planting is detailed on plan 68185.ES.008 Rev A attached, including species and spacing of plants and trees.

- The Emorsgate 4 Seed Mix (EM4) is a meadow mixture for clay soils (mix details below). Application rate 30kg/ha.

Wild Flowers

%	Latin name	Common name
0.5	Achillea millefolium	Yarrow
1	Betonica officinalis - (Stachys officinalis)	Betony
3.5	Centaurea nigra	Common Knapweed
1.5	Galium verum	Lady's Bedstraw
1.5	Leucanthemum vulgare	Oxeye Daisy
1	Lotus corniculatus	Birdsfoot Trefoil
3	Plantago lanceolata	Ribwort Plantain
0.6	Primula veris	Cowslip
3	Ranunculus acris	Meadow Buttercup
1.5	Rhinanthus minor	Yellow Rattle
1.5	Rumex acetosa	Common Sorrel
0.1	Silene flos-cuculi - (Lychnis flos-cuculi)	Ragged Robin
0.3	Trifolium pratense	Wild Red Clover
1	Vicia cracca	Tufted Vetch
20%		

Grasses

%	Latin name	Common name
10	Agrostis capillaris	Common Bent
2	Alopecurus pratensis	Meadow Foxtail (w)
1	Anthoxanthum odoratum	Sweet Vernal-grass (w)
1	Briza media	Quaking Grass (w)
36	Cynosurus cristatus	Crested Dogstail
24	Festuca rubra	Slender-creeping Red-fescue
2	Hordeum secalinum	Meadow Barley (w)
4	Phleum bertolonii	Smaller Cat's-tail (w)
80%		

Aftercare

- With regard to the land to the west of the proposed ditch, this will be managed in accordance with the approved Landscape, Restoration and Aftercare Management Plan (LRAMP, ref. SLR 407-0036-00368) - submitted to and approved by WSCC under Condition 8 of the landfill planning permission (ref. WSCC/088/10/UB).

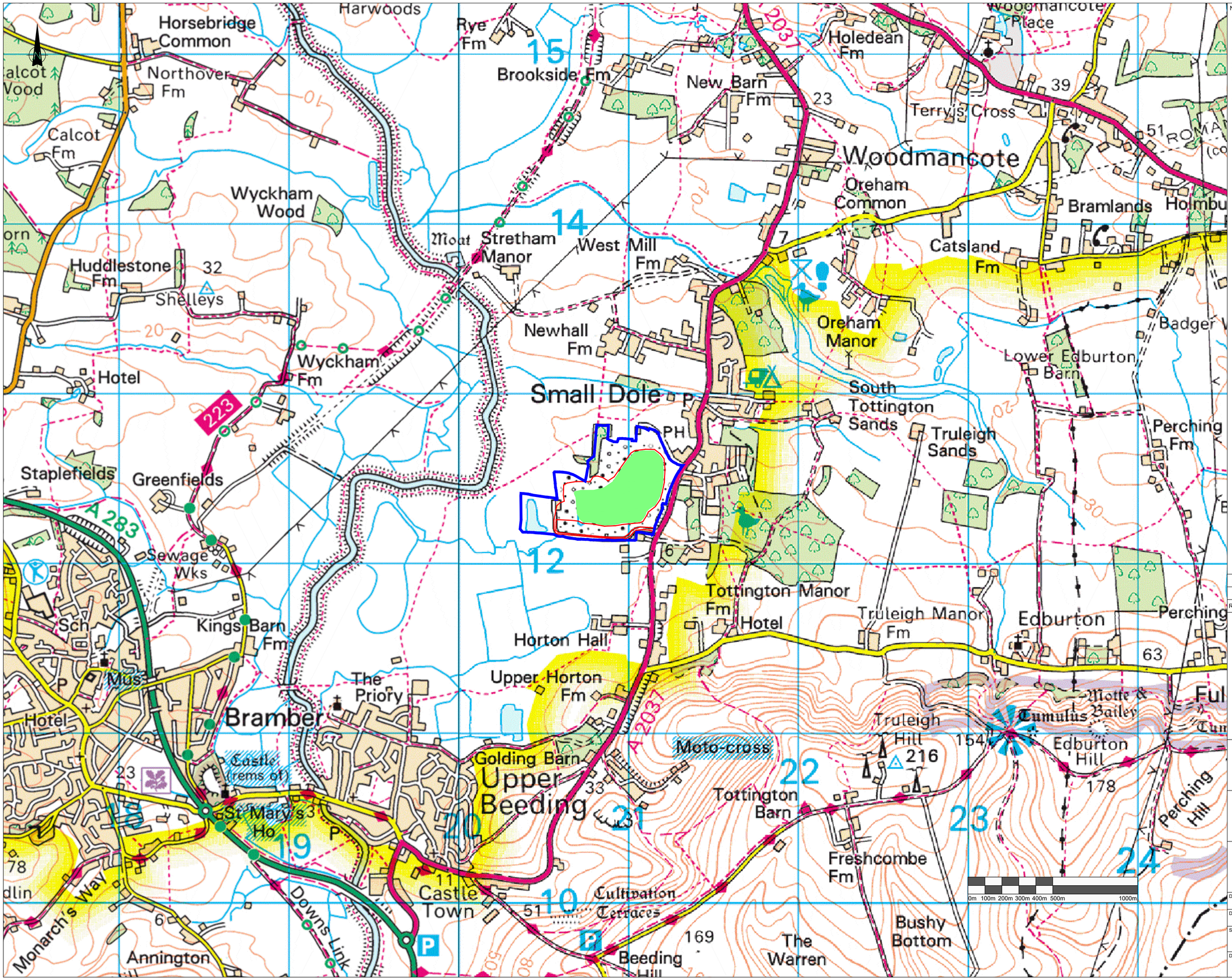
- In respect of the new habitat land east of the ditch little intrusive aftercare is proposed because natural regeneration is the key point of the scheme. The use of a rotational scraping or shallow digging of 50% of the area every 2 years will be undertaken to allow repeated successional habitat regeneration and minimise the invasion of weeds. This will be reviewed after 2 cycles (i.e. 4 years).

- Aftercare for the Emorsgate Seed Mix (taken from http://wildseed.co.uk/mixtures/view/5, accessed October 2015) is as follows.

  First year management
  Most of the sown meadow species are perennial and will be slow to germinate and grow and will not usually flower in the first growing season. Any flush of annual weeds from the soil in the first growing season is likely to be limited as there is likely to be a limited seed bank in the subsoil soil resource. Given the intent is to allow natural regeneration maintenance at this stage would concentrate on spot treatment of any noxious weeds.

  Management once established
  In the second and subsequent years EM4 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. In is intended to implement a traditional meadow management based around a summer hay cut, in combination with an autumn mowing or limited late summer grazing.

  The meadow grassland will not be cut or grazed from spring through to late July/August to give the sown species an opportunity to flower. After flowering the sward will be cut in mid August to 50mm height with a further cut in late September.



Notes

1. Reproduced from the Ordnance Survey Map. With permission of the Crown Copyright Ordnance Survey, License no. AC0000849896.
2. All levels in metres Above Ordnance Datum Newlyn.
3. Do not scale from this drawing.
4. Any anomalies on this drawing should be brought to the attention of Egniol Consulting Ltd.
5. Key.

Site Boundary

Land Ownership Boundary

Potential Energy Development Area

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Rev		By	Chk	App	Date
B	Scale bar added	LE	GR	GR	11.03.24
A	Updated Client Name	LE	GR	GR	15.01.24

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Valencia Energy Limited

Horton Landfill Site
Solar PV

Site Location Plan

Drawn by	Checked by	Approved by
LE	GOJR	GOJR
Date	Date	Date
13.11.2023	13.11.2023	14.11.2023

Status: Draft

Scale @ A1: 1:10,000

Drawing Number: ECL.9910.D01.001

Revision: B

CAD File Ref:P:\9910 Horton LFS - Drafting\CAD & BIM\Drawings\Current Working Drawings\ECL.9910.D01.001.dwg